

REMARKS

Upon entry of the foregoing amendments claims 1, 6-15, 18-20, and 27-33 are pending in the application. Claim 5 has been cancelled without prejudice or disclaimer to the subject matter contained therein.

Claim 1 has been amended to clarify the inventive subject matter. The amendment does not add any new matter within the meaning of 35 U.S.C. §132. Therefore, entry of the amendment is respectfully requested.

The Applicants further thank the Examiner for the indication that the subject matter of claims 15, 17-19 and 32 is allowable.

Accordingly, the amendments do not introduce any new subject matter within the meaning of 35 U.S.C. § 132. Therefore entry of the amendments is respectfully requested.

REJECTION UNDER 35 U.S.C. §112, second paragraph

At page 2 of the Official Action the Examiner rejects claim 5 as being indefinite under 35 U.S.C. § 112, second paragraph.

Applicants respectfully traverse this rejection. Claim 5 has been cancelled, thereby removing the basis for the rejection.

Accordingly, Applicants respectfully ask that the Examiner reconsider and withdraw this rejection.

REJECTIONS UNDER 35 U.S.C. §103(a)

Claims 1, 5-14, 20, 27-31 and 33 have been rejected under 35 U.S.C. § 103(a) as being anticipated by Mulvaney, et al. (U.S. Patent No. 6,548,168) in view of Oldenburg, et al. (U.S. Patent No. 6,344,272).

The U.S. Supreme Court in Graham v. John Deere Co., 148 U.S.P.Q. 459 (1966) held that non-obviousness was determined under § 103 by (1) determining the scope and content of the prior art; (2) ascertaining the differences between the prior art and the claims at issue; (3) resolving the level of ordinary skill in the art; and, (4) inquiring as to any objective evidence of nonobviousness.

To establish a *prima facie* case of obviousness, the Examiner must establish: (1) that some suggestion or motivation to modify the references exists; (2) a

reasonable expectation of success; and (3) that the prior art references teach or suggest all the claim limitations. Amgen, Inc. v. Chugai Pharm. Co., 18 USPQ2d 1016, 1023 (Fed. Cir. 1991); *In re Fine*, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988); *In re Wilson*, 165 USPQ 494, 496 (C.C.P.A. 1970).

A *prima facie* case of obviousness must also include a showing of the reasons why it would be obvious to modify the references to produce the present invention. See Ex parte Clapp, 277 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). The Examiner bears the initial burden to provide some convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings. Id. at 974.

Applicants respectfully traverse the instant rejection under 35 U.S.C. 103(a), because the cited references, alone or in combination, fail to teach each and every limitation of the presently claimed subject matter.

Claim 1 of the instant application recites an antimicrobial polymeric coating composition, in particular an antimicrobial coating material, comprising inorganic core-shell particles having a core and at least one shell directly deposited thereon, wherein the core consisting of nanoscale particles selected from the group consisting of aluminum oxide, zirconium oxide, titanium oxide, iron oxide, cerium oxide, indium-tin oxide, silicon carbide, tungsten carbide and silicon nitride, having a particle size <100 nm, and the shell is formed by at least one metal

having an antimicrobial action. The core-shell particles of claim 1 do not contain any organic parts, i.e., there is no organic shell of linker molecules.

As stated by Applicants in the previous response, Mulvaney, et al. and Oldenburg, et al., when considered alone or in combination, fail to teach or suggest a coating with core-shell particles free of organic parts. Further, when considered alone or in combination, Mulvaney, et al. and Oldenburg, et al., fail to teach or suggest core-shell particles having a core consisting comprising nanoscale particles selected from the group consisting of aluminum oxide, zirconium oxide, titanium oxide, iron oxide, cerium oxide, indium-tin oxide, silicon carbide, tungsten carbide and silicon nitride.

Mulvaney, et al. do not teach or suggest a coating with core-shell particles free of organic parts and having a core comprising nanoscale particles selected from the group consisting of aluminum oxide, zirconium oxide, titanium oxide, iron oxide, cerium oxide, indium-tin oxide, silicon carbide, tungsten carbide and silicon nitride. In fact, the core shell particles taught by Mulvaney, et al. comprise core particles, which may comprise a metal, such as copper, silver, gold, or platinum; a metal compound, such as metallic sulfide, metallic halide, etc.; or a semiconductor nanoparticle such as cadmium sulfide, germanium, zinc sulfide, etc. See, for example, claims 3-8. The shell, or "coating layer", is selected from silica; an organic conducting polymer; a metal, such as platinum, palladium, iridium, bismuth, copper, silver, gold, and

mixtures thereof; a metal oxide; a metal sulfide; a metal selenide; a metal telluride; and a metal halide. See, for example, claims 13-20.

Oldenburg, et al. fail to cure the deficiencies of Mulvaney, et al., because Oldenburg, et al. do not teach or suggest a coating with core-shell particles free of organic parts and having a core consisting of nanoscale particles selected from the group consisting of aluminum oxide, zirconium oxide, titanium oxide, iron oxide, cerium oxide, indium-tin oxide, silicon carbide, tungsten carbide and silicon nitride, as recited in present claim 1. Rather, the core shell particles described by Oldenburg, et al. comprise a nonconducting core (layer) and a conducting shell layer. See, for example, claim 1. The conducting shell layer may comprise a metal selected from coinage metals, noble metals, transition metals, synthetic metals, an organic conducting material or metal alloy. See, for example, claims 2-5. The core of Oldenburg, et al. comprises a dielectric or semiconducting material, such as silicon dioxide, titanium dioxide, PMMA etc. or mixtures thereof. See, for example, claims 7-11.

As such, the references teach core-shell particles which are only partly inorganic, and therefore do not teach each and every limitation of the instant claims. Thus, a *prima facie* case of obviousness has not been established.

Accordingly, Applicants request that the Examiner reconsider and withdraw this rejection.

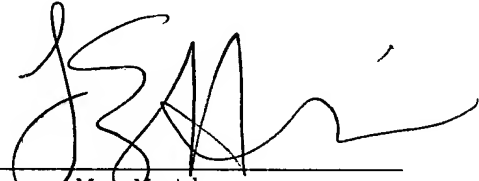
CONCLUSION

In view of the foregoing, Applicants submit that the application is in condition for allowance. The Examiner is invited to contact the undersigned attorney if it is believed that such contact will expedite the prosecution of the application.

Please charge any fee deficiency or credit any overpayment to Deposit Account No. 14-0112.

Respectfully submitted,

THE NATH LAW GROUP

A handwritten signature in black ink, appearing to read 'G. Nath', written over a horizontal line.

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